

WHAT IS CLAIMED IS:

1. A retrograde cannula for delivering fluid to a patient's vessel, the cannula comprising:

5 a body including proximal and distal ends and an infusion lumen extending therebetween for conducting pressurized fluid to a lumen outlet arrangement disposed adjacent the distal end;

10 an automatically inflatable balloon extending around the body adjacent to, and spaced from, the lumen outlet arrangement, the balloon receivable in the vessel in a deflated state and inflatable into sealing contact with a wall of the vessel, the body including a passage arrangement for fluidly communicating the balloon with the infusion lumen to enable the balloon to be inflated by the pressurized fluid conducted through the infusion lumen; and

15 a valve arranged in the body for being shifted between an open position to open the passage arrangement, and a closed position for closing the passage arrangement to keep the balloon in its inflated state when the delivery of pressurized fluid is halted.

2. The cannula according to claim 1 wherein the valve is manually shiftable between the open and closed positions.

3. The cannula according to claim 1 wherein the passage arrangement comprises a plurality of passages.

4. The cannula according to claim 1 wherein the body further includes a drain lumen arranged to interconnect the balloon with the infusion lumen independently of the passage arrangement, the drain lumen being openable and closable.

5. A retrograde cannula for delivering cardioplegia to a vessel of a heart, the cannula comprising:

a body including proximal and distal ends and an infusion lumen extending therebetween for conducting cardioplegia to a lumen outlet arrangement disposed adjacent the distal end;

an automatically inflatable balloon extending around the body adjacent to, and spaced from, the lumen outlet arrangement, the balloon receivable in the vessel in a deflated state and inflatable into sealing contact with a wall of the vessel, the body including a passage arrangement for fluidly communicating the balloon with the infusion lumen to enable the balloon to be inflated by the pressurized cardioplegia conducted through the infusion lumen; and

means for opening the passage arrangement to communicate the balloon with the infusion lumen, and for closing the passage to

keep the balloon in its inflated state when the delivery of cardioplegia is halted.

5 6. The cannula according to claim 5 wherein the body further includes a drain lumen arranged to interconnect the balloon with the infusion lumen independently of the passage arrangement, the drain lumen being openable and closable.

7. A method of delivering cardioplegia to a heart vessel, comprising the steps of:

- 10 A. positioning a distal end of a cannula within the heart vessel;
B. conducting a flow of pressurized cardioplegia through an infusion lumen of the cannula and discharging the cardioplegia into the heart vessel;
C. communicating the infusion lumen with a balloon disposed on the distal end, during step B, to cause the cardioplegia to
15 inflate the balloon into sealing contact with a wall of the heart vessel;
D. halting the flow of cardioplegia through the infusion lumen while preventing drainage of cardioplegia from the balloon, to maintain the balloon in its inflated state; and
20 E. thereafter repeating step B.

8. The method according to claim ^{7, a.o. 2/20/02} ~~5~~ wherein step D includes causing a valve to move to a closed position closing a passage arrangement between the balloon and the infusion lumen.

9. The method according to claim 8 wherein step D further comprises manually shifting the valve to the closed position.

5 10. The method according to claim 8, further comprising, subsequent to step E, the step of opening the valve to drain cardioplegia from the balloon to reduce the profile thereof prior to withdrawal of the cannula from the heart vessel.

10 11. The method according to claim 7, further including, subsequent to step E, the step of draining cardioplegia from the balloon to reduce the profile thereof prior to withdrawal of the cannula from the heart vessel.

12. The method according to claim 11 wherein the draining step comprises sucking cardioplegia from the balloon by applying suction to the balloon interior.

15 13. The method according to claim 11 wherein the draining step comprises opening a drain lumen for draining cardioplegia from the balloon to the infusion lumen along a path different from the path along which the cardioplegia was conducted to the balloon in step C.